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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,890	10/16/2003	Robert Urscheler	62739C	9015
109	7590	10/17/2005	EXAMINER	
THE DOW CHEMICAL COMPANY INTELLECTUAL PROPERTY SECTION P. O. BOX 1967 MIDLAND, MI 48641-1967			BAREFORD, KATHERINE A	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/691,890	URSCHELER ET AL.
	Examiner	Art Unit
	Katherine A. Bareford	1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 29 August 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) 28,29,51 and 52 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4,6-27,30-50,53-56,58-61 and 63-74 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.  
*Claims 5, 57 and 62 are canceled*

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/05.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

1. The amendment of August 29, 2005 has been received and entered. With this amendment, claims 5, 57 and 62 have been canceled, claims 28-29 and 51-52 are withdrawn, and claims 1-4, 6-27, 30-50, 53-56, 58-61, and 63-74 are present for examination.

### *Specification*

2. The objection to the specification as failing to provide proper antecedent basis for the claimed subject matter of claim 7 is withdrawn due to applicant's amendment to the specification to correct this issue of August 29, 2005.

### *Claim Objections*

3. Claims 27 and 49 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 27 depends on claim 1 and requires a web velocity of at least about 300 m/min. This is not further limiting of claim 1, which now requires a web velocity of at least about 400 m/min.

Claim 49 depends on claim 30 and requires a web velocity of at least about 300 m/min. This is not further limiting of claim 30, which now requires a web velocity of at least about 400 m/min.

*Claim Rejections - 35 USC § 112*

4. The rejection of claim 7 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement is withdrawn due to applicant's amendments to the claim 7 to clarify the requirements.

5. The rejection of claims 2, 3, 5, 6, 14-17, 19, 21-24, 31, 33, 34, 54-56, 66, 67, 70 and 71 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn due to applicant's amendments and arguments of August 29, 2005 to clarify the claims.

*Priority*

6. In the specification, applicant indicates that this case is a continuation-in-part of 10/273,866 filed 10/17/02, which is a continuation-in-part of 10/257,172, filed 4/12/02. However, a review of 10/257,172 indicates that the application does not provide support for the independent claims of the present application as the first and second

components capable of reacting of claim 1 and the at least one reactable component and time of reaction of claim 30 are not provided in 10/257,152. Therefore, the earliest effective date for the present application is no earlier than 10/17/02.

***Claim Rejections - 35 USC § 102***

7. The rejection of claims 1-6, 8, 9, 12, 13, 16-22, 25, 30-35, 38-44, 47, 50, 53, 65-67 and 69-71 under 35 U.S.C. 102(a) as being anticipated by Yokota (US 6,746,718) or WO 01/76884 A1 (hereinafter '884) is withdrawn due to applicant's amendments to the independent claims as to the speed requirements on August 29, 2005.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not

commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-4, 6, 8, 9, 11-27, 30-50, 53-56, 58-61, 63-71 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota (US 6,746,718) or WO 01/76884 A1 (hereinafter '884) in view of in view of Schweizer Article (Premetered Coating Processes: Advantages and Applications) (as provided by applicant).

v/b

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884 A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota teaches a method of producing a coated substrate. Column 3, lines 10-40. The method includes forming a free flowing curtain. Column 2, lines 20-30 and column 17, lines 15-40. The curtain has a first component and a second component capable of reacting with each other. Column 3, lines 20-40 and column 7, lines 1-55, for example. The curtain is contacted with a continuous web substrate. Column 17, lines 15-40.

Claim 2: the curtain can be multilayer. Column 17, lines 15-40. The curtain has at least two layers. Column 17, lines 15-40 and column 3, lines 20-40. One layer contains the first component. Column 3, lines 20-40 and column 7, lines 1-55. A second layer contains the second component. Column 3, lines 20-40 and column 7, lines 1-55.

Claim 3: an internal layer can be present between the layers comprising the first component and the layer comprising the second component. Column 3, lines 20-40 and column 7, lines 1-55.

Claims 4, 33: the reaction type can be an anionic-cationic-interaction. Column 7, lines 1-55.

Claim 6: the curtain can have at least one layer comprising a first and second component capable of reacting with each other. Column 13, line 45 through 14, line 10 (for heat printing).

Claims 8, 32: the curtain can be a composite multilayer curtain. Column 17, lines 15-40.

Claims 9, 34: the reaction between the first and second components can occur when applied to the substrate, for example. Column 6, lines 10-35.

Claims 12, 35: a top layer to ensure printability can be provided. Column 14, lines 20-35.

Claims 13, 50: the substrate can have a weight of 60 g/m<sup>2</sup>. Column 17, lines 30-40.

Claims 16, 38: the curtain can be three layers. Column 17, lines 30-40.

Claims 17-18, 39-40: the curtain can have a layer with at least one pigment. Column 13, lines 15-30. The pigment can be talc, kaolin, calcium carbonate, etc. Column 13, lines 15-30.

Claims 19-20, 41-42: the curtain can have a layer with a binder. Column 12, lines 40-50. The binder can be polyvinyl alcohol, etc. column 12, lines 40-55.

Claims 21, 43: the curtain can have a layer with an optical brightening agent. Column 12, lines 30-40 (fluorescent brightener).

Claims 22, 44: the curtain can have a surfactant. Column 12, lines 25-35.

Claims 25, 47: the substrate can be a basepaper. Column 17, lines 30-35.

Claims 30-31: the curtain has first and second components capable of reacting. Column 3, lines 20-40 and column 7, lines 1-55. The components can begin reacting during coating and be completely reacted before the coating process is complete. Column 6, lines 20-30 (i.e. before the end of drying as part of the coating process).

Claim 53: the curtain can contain a reactive component that reacts by external means, such as heat. Column 13, lines 40-65.

Claims 65, 69: the curtain can be formed with a slide die. Column 17, lines 15-25.

Claim 66, 67, 70, 71: the curtain can contain polyethylene oxide in any layer. Column 13, lines 15-30.

Yokota /'884 teaches all the features of these claims except (1) the cationic starch and anionic component (claim 11), (2) the dried weight (claims 14, 15, 36, 37), (3) the solids content (claims 23, 24, 45, 46), (4) the not precoated or precalendered paper (claims 26, 48), (5) the epoxy functional and amine hardening agent (claim 73), (6) the web speed (claims 1, 27, 30, 49, 58, 63), (7) layer numbers (claims 54-56, 59-61) and (8) the use of a slot die (claims 64, 68). Yokota does teach that the components include a

positively charged (cationic) compound and a negatively charged (anionic) compound. Column 7, lines 10-25. The coating can also contain starch. Column 12, lines 45-50. One of the compounds can be an amine. Column 7, lines 25-30. The coating can also contain epoxy. Column 12, lines 60-65. As to the dried weight, Yokota does teach various examples with varying composition amounts (see Example 5, column 16, line 45 through column 17, line 40, for example) with wet weights, and that these are dried. As to the solids content, Yokota does teach various examples with varying composition amounts (see Example 5, column 16, line 45 through column 17, line 40, for example). A variety of different layers can be applied. Column 5, lines 5-35. Yokota teaches that a variety of different layer combinations can be applied.

Schweizer Article teaches that when performing curtain coating it is well known to apply coatings at speed up to 30 m/s (1800 m/min) and with layer numbers up to over 10. see Table 1. The article also teaches that both slot dies and slide dies are well known forms of curtain coating. See figure 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to (1) and (5) modify Yokota/'884 to perform routine experimentation to optimize what positively charged and negatively charged compounds to use as suggested by the Examples of Yokota testing for optimal coating. As a result, the use of components suggested to be present such as starch, amines and epoxy materials would be tested for optimal viscosity increasing. (2) (3) It would further have been obvious to modify Yokota/'884 to perform routine experimentation to

optimize the weight of the dried coating and solids content depending on the specific information recording materials desired, given the variety of coating possibilities given by Yokota and the variety of materials that can be present. (4) It would further have been obvious to modify Yokota/'884 to use paper that had not been precoated or precalendered with an expectation of desirable coating results, because Yokota/'884 teaches to use paper in general, and untreated paper would be a well known material that would be a subset of paper that would be expected to work. (6) (7) (8) Moreover, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 to use conventional curtain coating features as taught by Schweizer Article in order to provide desirable coating application, because Yokota/'884 teaches curtain coating various numbers of layers of coating and Schweizer Article teaches conventional speeds, layer numbers and die types when curtain coating.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Schweizer Article as applied to claims 1-4, 6, 8, 9, 11-27, 30-50, 53-56, 58-61, 63-71 and 73 above, and further in view of Japan 11-192777 (hereinafter '777).

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884 A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 in view of Schweizer Article teaches all the features of these claims except the specific coating materials.

'777 teaches that when performing multilayer coating that can be curtain coating, that when it is desirable to increase viscosity by reacting components in layers together, polyvinyl alcohol and borax can be used as the two components. See the abstract, paragraphs [0031] and [0044]–[0047].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Schweizer Article to use reactive materials such as taught by '777 in order to provide desirable viscosity increase, because Yokota/'884 in view of Schweizer Article teaches reactive material from different layers to increase viscosity and '777 teaches that two such components for such a process are polyvinyl alcohol and borax.

13. Claims 10 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Schweizer Article as applied to claims 1-4, 6, 8, 9, 11-27, 30-50, 53-56, 58-61, 63-71 and 73 above, and further in view of Hanaki et al (US 6060206).

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884 A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 in view of Schweizer Article teaches all the features of these claims except the specific coating materials.

Hanaki teaches that when forming information recording materials, a protection layer can desirably be provided which contains materials such as starches and polyvinyl alcohol and that this layer can desirably be cross-linked with dialdehyde or borax.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Schweizer Article to use reactive materials such as taught by Hanaki in order to provide desirable viscosity increase, because Yokota/'884 in view of Schweizer Article teaches reacting material from different layers to increase viscosity and '777 teaches that two such component combinations for such a process are polyvinyl alcohol and borax or starch and dialdehyde.

14. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Schweizer Article as applied to claims 1-4, 6, 8, 9, 11-27, 30-50, 53-56, 58-61, 63-71 and 73 above, and further in view of Asano et al (US 6335085).

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884 A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 in view of Schweizer Article teaches all the features of these claims except the specific coating materials.

Asano teaches that when forming information recording materials, coatings such as polyurethane coatings can be formed by reacting polyisocyanate compositions and polyol compounds. Column 7, lines 10-20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Schweizer Article to use reactive materials such as taught by Asano in order to provide desirable viscosity increase, because Yokota/'884 in view of Schweizer Article teaches reactive material from different layers to increase viscosity and Asano teaches two reactive materials that form desirable compounds for information recording materials.

15. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Schweizer Article as applied to claims 1-4, 6, 8, 9, 11-27, 30-50, 53-56, 58-61, 63-71 and 73 above, and further in view of Sakagami et al (US 6214416).

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884 A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 in view of Schweizer Article teaches all the features of these claims except the specific coating materials.

Sakagami teaches that when forming coating materials to absorb UV rays for surfaces such as paper and film, coatings such as epoxy resins can be formed by reacting polyglycidyl esters with amino silanes. Column 12, lines 50-65, column 1, lines 5-10, column 2, lines 40-60 and column 20, lines 5-15. The coating can be applied by various coating methods such as flow coating. Column 19, lines 60-65.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Schweizer Article to use reactive materials such as taught by Sakagami in order to provide UV protection layers, because Yokota/'884 in view of Schweizer Article teaches reactive materials used in coating and Sakagami teaches two reactive materials that form desirable compounds for UV protection of articles.

*Response to Arguments*

16. Applicant's arguments filed August 29, 2005 have been fully considered but they are not persuasive.

Applicant specifically provided arguments as to the combination of Yokota (the Examiner understands these arguments to apply to both Yokota and '884, as they are corresponding documents) and Schweizer Article. Applicant noted that Yokota does not provide the now claimed greater than about 400 m/min speed. As to the use of Schweizer Article, applicant argues that the two references do not contain any teaching that would motivate one of ordinary skill in the art to combine their teachings. Also,

applicant argues that Schweizer Article is not enabling, as at Table 1 it contains broad teaching regarding the web velocity, number of layers and other variables encountered in pre-metered coatings, but contains no examples or other teachings regarding how high web velocities could be achieved. Rather, it states a dream but does not give any details about how this could be realized, according to applicant. Applicant states that evidence of this is contained in the following quotation of Schweitzer: "The possibility of simultaneous multilayer coating, in particular, as recently attracted great interest" and as further stated "Caution should therefore be used in interpreting Table1".

The Examiner has reviewed this argument, however, the rejection is maintained. The primary rejection is now Yokota/'884 in view of Schweizer Article due to the amendment to the claims. As to the combination of Yokota/'884 and Schweizer Article it is the Examiner's position that both references are concerned with curtain coating processes, with Schweizer Article teaching conventional ranges of curtain coating features that provide desirable curtain coating. It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Schweizer Article is certainly in the field of curtain coating. As to the argument that Schweizer Article is nonenabling, the Examiner entirely disagrees. Schweizer Article is a 1998 article that discusses the state of the art of various types of premetered coating processes, including

curtain coating. As discussed in the introduction, such processes were developed during the 1950's. Schweizer Article states in the introduction "In the following, we shall describes these advantages as well as the use limits and the hardware component requirements for these processes". Then in the next paragraph, specific descriptions of the number of layers and other features that can be used in curtain coating are provided, as well as a reference to a multilayer curtain coating die figure (Figure c) in the back). While at page 2, a reference to the possibility of "simultaneous multiple coatings" is referred to, there is no indication that such is not previously known. See for example Figures 1 and 2 (referred to in section 4 "Hardware requirements") which both show set ups for simultaneous multiple coating, Figure 2 with a complete device. Note also page 3, it is stated that "The operating limitations of premetered coating processes are well known"). As to section 5 "Application Limits" and Table 1, again the general process limits are described as known processes and in fact, in section 6 "Application

Examples" specific uses of are provided. Although the phrase "The possibility of

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simultaneous multilayer coating, in particular, has recently attracted great interest" <sup>is present</sup>, the article further in the same paragraph states "Although the processes described here are well suited for monolayer coating, their superiority is shown particularly in simultaneous multilayer coating.", indicating that it is well known to provide simultaneous multilayer curtain coating. The Examiner further notes that the enablement of Schweizer Article can be supported by, for example, Yokota /'884 which clearly demonstrate that multilayer curtain coating is well known. Another example

supporting the enablement of Schweizer Article is provided by Hughes (US 3508947) also provided by applicant which in figure 1 provides a curtain coater corresponding to Figure 1c) of Schweizer Article, provides that 10 or more layers can be coated (column 14, lines 65-75) and provides speeds of greater than 400 m/min for curtain coating (examples 1 and 2, columns 15-16), for example. Hughes was published in 1970.

### *Conclusion*

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



KATHERINE BAREFORD  
PRIMARY EXAMINER